

THREE PREVIOUSLY UNDESCRIBED SPECIES OF
VACCINIUM (ERICACEAE)
FROM COSTA RICA AND PANAMA

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ABSTRACT

Three new species of *Vaccinium* (Ericaceae) are described from Costa Rica and Panama: *Vaccinium almedae* Wilbur & Luteyn, *V. furfuraceum* Wilbur & Luteyn, and *V. luteynii* Wilbur.

KEY WORDS: Ericaceae, *Vaccinium*, Costa Rica, Panama

RESUMEN

Se describen tres nuevas especies de *Vaccinium* (Ericaceae) de Costa Rica y Panamá: *Vaccinium almedae* Wilbur & Luteyn, *V. furfuraceum* Wilbur & Luteyn, y *V. luteynii* Wilbur.

PALABRAS CLAVES: Ericaceae, *Vaccinium*, Costa Rica, Panama

INTRODUCTION

In order to validate the names of three new species of *Vaccinium* (Ericaceae) prior to their appearance in William Burger's *Flora Costaricensis*, which frowns on such distractions appearing therein, their descriptions are presented here. A discussion of the presumed relationships of each of these species will appear in a later paper treating systematically all the species of *Vaccinium* known from Mexico and Central America.

***Vaccinium almedae* Wilbur & Luteyn, sp. nov. (Fig. 1).** TYPE: PANAMA. CHIRIQUE Edwin Fabrega Dam and Reserve in Fortuna, along trail to hydrological station, along Río Hornito, below forestry house along the road in wet forest, 8°45'N, 82°05'W, 1200 m, 20 Jan 1989 (fl), *Almeda, de Nevers & McPherson* 6369 (HOLOTYPE: PMA; ISOTYPES: CASI, DUKE, MO, NY).

Frutex epiphyticus 1–2 m altus. Folia coriacea, integra, glabra; nervatioa camptrodroma. Petioli 7–15 × 2–3.5 mm, glabri. Inflorescentiae ramiflorae fasciculatae; pedicelli 5–10 mm longi, gracili; bracteolae 2, deltatae, 0.5–0.8 mm longi; margo fimbriato. Calyx pedicellis articulatus, 3–4 mm longus, glabrus; lobi calycis triangulari acuti, 0.2–0.4 mm alti. Corolla cylindrica glabra, 5–9 mm longa; lobi corollae 5, ca. 2.5 mm longi. Stamina 10, filamenta 1–2.5 mm longa, glabra; thecae 1.4–2.2 mm longae, laevigatae, tubuli separati, gracili 3–4.8 mm longi, truncati.

Coarse, rigid, epiphytic **shrubs** 1–2 m tall; branchlets and branches ± terete, glabrous or nearly so but current season growth not present, thin, brownish or

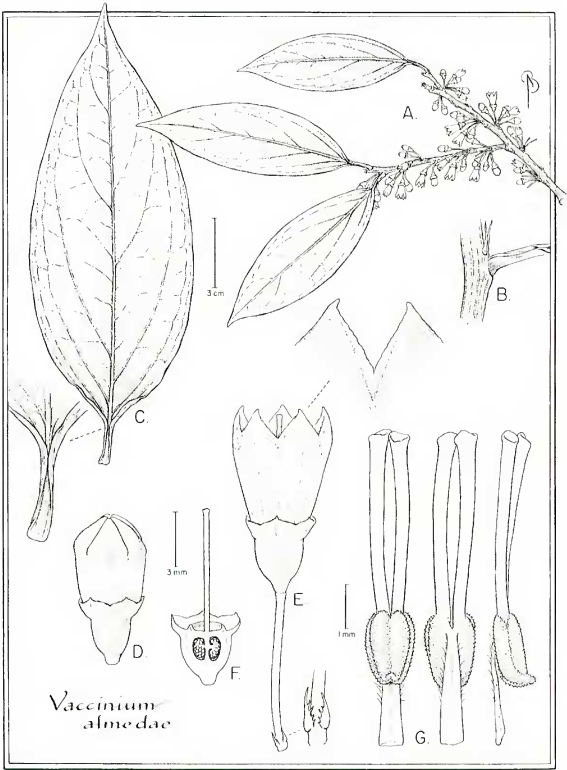


FIG. 1. *Vaccinium almedae*. A. Habit. B. Detail of leaf axil showing pseudostipular axillary bud scales. C. Leaf with detail of adaxial portion of blade-petiole junction. D. Flower in bud. E. Flower at anthesis with detail of basal pedicellary bracteoles and the thinner sinus tissue between the corolla lobes. F. Longitudinal section of gynoecium through calyx. G. Stamens showing ventral, dorsal, and lateral views (all drawn from the holotype, *Almeda et al.* 6369).

grayish. **Leaf-blades** coriaceous, elliptic, mostly 6–18 cm long, 3–7.5(–9) cm broad, apically acute to acuminate, basally rounded to shortly tapering and sometimes curling or somewhat conduplicate around the petiole at the junction, marginally entire, glabrous on both surfaces, the venation 3–5-plinerved, the veins \pm depressed above except the midrib elevated for the proximal third to half while elevated beneath through the 3–4 order and forming an indistinct reticulum; petioles mostly 7–15 mm long, 2–3.5 mm diam., somewhat flattened above and there rather broadly and shallowly grooved, glabrous. **Inflorescences** mostly ramiflorous, of several to numerous, sessile fascicles (2–10-flowered) emerging from small, depressed mounds 1–2 mm diam., 1–2 mm long; floral bracts ciliate, scale-like, 0.6–1.5 mm long; pedicels slender, glabrous, 5–10 mm long, 0.2–0.3 mm diam.; bracteoles 2, ciliate, deltoid, 0.5–0.8 mm long. **Flowers** 5-merous; calyx ca. 3–4 mm long, clearly articulate with the pedicels, the hypanthium cylindric-obconic, ca. 1.5–2.2 mm long, 1.6–2 mm diam., glabrous, the lobes broadly based, minute, varying from barely detectable to perhaps as much as 0.2–0.4 mm long, glabrous; corolla cylindric to more typically gradually funnelform, glabrous both externally and internally, greenish-white, 5–9 mm long, flaring to ca. 5–6 mm diam. from a 2–2.5 mm diam. base, the lobes narrowly triangular to deltoid, acute, ca. 2.5 mm long; stamens 10, included, 7–8 mm long, the filaments 1–2.5 mm long, united in the basal 0.5 mm, glabrous, flattened, the anthers attached medially, lacking spurs, 6–7 mm long, the thecae very finely pebbled, ca. 1.4–2.2 mm long, basally incurved and apiculate, the tubules ca. 3–4.8 mm long, dehiscing by truncate to slightly flaring, terminal pores; styles slightly exerted, glabrous. **Berry** immature, 3–4 mm diam., glabrous.

Distribution.—Presently known only from five collections; three made near the Fabrega Dam site at Fortuna (Chiriquí Province), one from Cerro Colorado (Bocas del Toro Province), Panama in wet forest, at 1150–1500 m, and one from Cerro Arizona near Santa Fe, Veraguas Province. Flowering: Jan.; immature fruits: Apr.

Additional collections examined: **PANAMA. Bocas del Toro:** region of Cerro Colorado 7 mi from Chami Camp, ca. 8°35'N, 81°45'W, ca. 1500 m, 12 Apr 1986, *McPherson* 8825 (MO!). **Chiriquí:** Fortuna Dam region, along trail to hydrological station on Rio Hornito, below forestry house on hwy, 8°45'N, 82°15'W, 1150–1200 m, 20 Jan 1989, *McPherson* 13612 (DUKE!, MO!); Fortuna dam site, along stream on white sandy soil, 1200 m, 7 Feb 1985, *van der Werff & van Hardeveld* 6609 (MO, photo NY neg. 13043). **Veraguas:** in forest below summit of Cerro Arizona, above Santa Fe, elev. 4400 ft, *Hammel & Kress* 8568 (DUKE!)

Vaccinium furfuraceum Wilbur & Luteyn, sp. nov. (**Fig. 2**). TYPE: COSTA RICA. LIMÓN: Cantón de Talamanca, fila de exploración minera entre Rio Sukut y Rio Carbri, Muragubishi, 9°22'50"N, 82°56'50"W, 700 m, 14 Jul 1989 (fl), *Herrera* 3286 (HOLOTYPE: INB; ISOTYPES: DUKE!, FI, NY! and 4 duplicates to be distributed).

Frutex epiphyticus; ramuli teretes pubescentes vel pilosi. Petioli 2–3(–4) mm longi, pilosi. Lamina ovata vel ovato-elliptica, (2.5–)4–6 \times (1.2–)1.8–2.5 cm, basi rotundata, apice acuminata. Inflorescentiae axillares, racemosae vel corymbosae, 3–10(–12) florum. Calyx pedicellis articulatus. Hypanthium squamatum obconicum, 1.5 \times 5–6 mm. Corolla extus squamata; tubus 8–12 mm longus.



Fig. 2. *Vaccinium furfuraceum*. Isotype (Herrera 3286, DUKE)

Much-branched, epiphytic, lianoid **shrubs** with branchlets brownish, \pm terete, finely ridged and grooved, densely spreading hirsutulous, 1.5–4 mm diam. **Leaf-blades** somewhat coriaceous, ovate to ovate-elliptic, (2.5–)4–6 cm long, (1.2–)1.8–2.5 cm broad, basally rounded, apically acuminate and \pm tapering abruptly to the narrowly rounded tip, marginally entire, glabrous above or nearly so except moderately pilose along the principal veins, moderately to densely spreading pilose beneath along the principal, secondary and even tertiary veins with hyaline trichomes up to 0.7 mm long and also densely beset especially when young with short, thick, glandular, scale-like trichomes ca. 0.1–0.2 mm long on both the veins and the surface, the venation weakly 5-plinerved, the secondary nerves joining together in a series of prominent arches, the lamina \pm bullate, the midrib and secondary veins impressed above and elevated beneath and the tertiary veins slightly elevated on both surfaces; petioles 2–3(–4) mm long, densely spreading pilose. **Inflorescences** axillary, congregated distally, sometimes appearing terminal, racemes but with the rachis often contracted and the flowers hence appearing somewhat corymbose, 3–10(–12) flowered, 2.5–5 cm long overall; rachises (2–)4–8 mm long, densely glandular-strigillose with thickened trichomes 0.1–0.3 mm long and sparingly to moderately pilosulous with hyaline spreading trichomes, 0.3–0.6 mm long; floral bracts narrowly lanceolate to linear-lanceolate, marginally glandular ciliate, 2.5–2.6 mm long; pedicels (0.6–)1–2(–2.4) cm long, moderately to densely glandularly strigillose and also sparingly pilosulous with hyaline trichomes; bracteoles 2, appressed, linear-lanceolate, glandular-ciliate, located in about proximal third, ca. 2.8 mm long. **Flowers** 5-merous; calyx 3–4.5 mm long, strongly articulate with pedicels, the hypanthium shallowly obconic, ca. 1.5 mm long, ca. 5–6 mm diam. distally, prominently flaring from the approximately 3 mm diam. basal portion, densely and scurfily glandular-squamate throughout, the limb ca. 3 mm long including the lobes, the lobes deltoid-triangular to broadly oblongish with an abrupt distal tip, ca. 1–1.2 mm long, ca. 2.3 mm broad at base; corolla broadly cylindrical, relatively thin in texture, densely scurfily glandular-squamate externally, glabrous internally, the tube 8–12 mm long, ca. 8 mm in diam. distally, the lobes triangular, 2.5–3 mm long, ca. 3 mm broad basally, acute; stamens 10, included, ca. 7–9.5 mm long, the filaments conspicuously hyaline ciliate, flattened, 2–3 mm long, the anthers lacking spurs, ca. 7 mm long, the thecae granular, 2–2.2 mm long, basally incurved, the tubules ca. 3–5 mm long, dehiscent by latrorse, elongate clefts ca. 1–2 mm long; styles about as long as the corolla, straight, glabrous. **Berry** not seen.

Distribution.—Known only from the type collection made in Costa Rica in the Talamanca foothills of Limón Province at ca. 700 m.

Vaccinium luteynii Wilbur, sp. nov. (**Fig. 3**). TYPE: PANAMA. BOCAS DEL TORO: Fortuna Dam-Chiriquí Grande Road, 2–3 km N of the Continental Divide, ca. 8°48'N, 82°12'W, 700–

760 m, disturbed, steep roadside slopes, 15 Oct 1998 (fl), *Luteyn, Riggs, Guerra, and Sylva 15322* (HOLOTYPE: PMA; ISOTYPES: AAU, CAS, DUKE, E, G, K, MO, NY, TEX, US).

Frutex epiphyticus; ramuli teretes glabri. Folia coriacea glabra, ovata vel ovato-elliptica vel oblongo-ovata, basi rotundata, apice acuta vel acuminata, lamina 5–15 × 3–6 cm; petioli glabri, 1–5 mm longi. Calyx pedicellis articulatus; hypanthium subglobose, succulentum, glabratum, ca. 1 mm altum y 4–4.5 mm diam.; limbus calycis 3 mm longus, 10-lobata, lobi calycis 5, 0.6–1 mm longi acuti glabri; corolla succulenta, urceolata ad campanulata ca. 5–10 mm alta, ca. 6 mm diam.; extus glabra, intus pilosi, lobi corollae ca. 3 mm longi acuti.

Terrestrial or epiphytic **shrubs** to 4 m tall, with tan to dull reddish-brown, glabrous, terete branches. **Leaves** subopposite, the blades coriaceous, ovate to oblong-ovate or ovate-elliptic, ca. 5–15 cm long, 3–6 cm broad, apically acute to somewhat acuminate, basally rounded to almost subclasping, marginally entire and slightly thickened and revolute, glabrous or very nearly so on both surfaces, the venation 3–5(–7)-plinerved with lateral nerves arising from proximal 1/4–1/3 of midrib, midrib proximally much thickened and weakly elevated in basal 1/4 above, then thinner and weakly impressed becoming flush to slightly elevated near apex, lateral nerves weakly impressed to flush proximally above but soon slightly elevated distally, reticulate veinlets elevated above, all venation somewhat elevated beneath throughout; petioles stout, glabrous, 1–5 mm long. **Inflorescences** axillary (often appearing terminal), corymbose racemes mostly 5–8 cm long overall, 10–13-flowered, with glabrous to very sparingly and minutely puberulent peduncles; rachises 1.5–4.5 cm long; floral bracts persistent, triangular or lanceolate, scale-like, glabrous but often marginally, minutely ciliate, 2–2.5 mm long; pedicels glabrous, irregularly angulate or ridged, 20–40 mm long, ca. 0.6–1 mm in diam.; bracteoles 2, at or very near the base, subopposite, glabrous or minutely ciliate, lanceolate to narrowly triangular, persistent, 1.2–2 mm long. **Flowers** 5-merous; calyx 4–4.2 mm long, articulate with pedicels, the hypanthium subcylindric, deeply and bluntly rugose, glabrous, ca. 1 mm long, 4–4.5 mm in diam., the limb ca. 3 mm long, smooth above but broadly and saccately spurred opposite and below each lobe, the spurs solid (not hollow) and sometimes slightly and broadly bilobed, the lobes triangular, 0.6–1 mm long, acute, glabrous; corolla thick and somewhat fleshy, broadly urceolate to urceolate-campanulate, ca. 10 mm long, ca. 8 mm broadest diam. when fresh, but drying 5–8 mm long and ca. 6 mm in diam. just beneath the throat and 3.5–4 mm in diam. just above the calyx, green, externally glabrous and internally densely pilose with sordid, white trichomes especially in the throat and lobes, the lobes ca. 3 mm long, acute; stamens 10, included, ca. 6.5 mm long, the filaments 3.5–4 mm long, long-pilose in distal half, attached to the anther dorsally slightly above its middle, the anthers golden, lacking spurs, ca. 3.5 mm long, the thecae ca. 2–2.5 mm long, densely and finely papillate, the lower third strongly incurved, the tubules ca. 1 mm long, dehiscing by introrse, strikingly oblique pores. **Berry** not seen.

Distribution.—Montane rainforests in Panama, along the continental divide, between Bocas del Toro and Chiriquí, at 700–950 m.

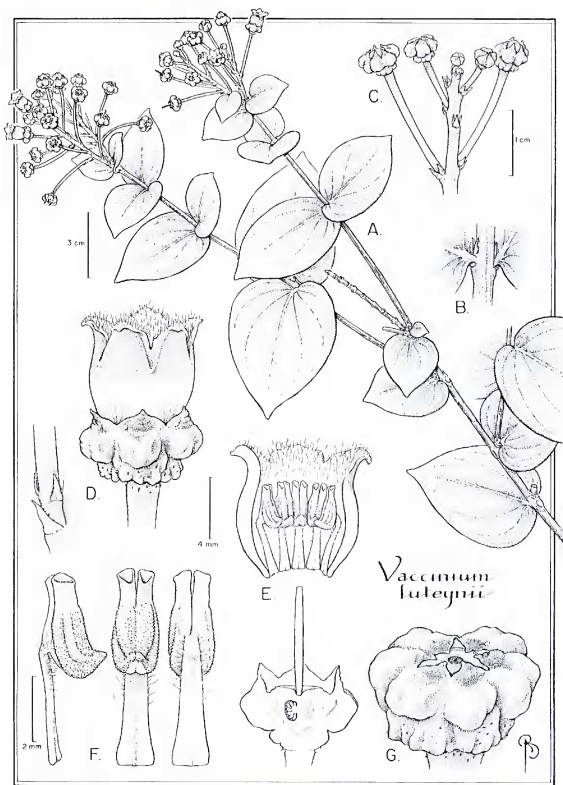


FIG. 3. *Vaccinium luteynii*. A. Habit showing subopposite leaves. B. Details of leaf insertion on stem. C. Details of inflorescence post-anthesis. D. flower showing saccate spurs below each calyx lobe and detail of pedicellary basal bracteoles and floral bract. E. Longitudinal section of corolla showing position of stamens and calyx (the sketch immediately beneath) F. Stamens showing lateral, ventral, and dorsal views. G. Calyx post-anthesis (all drawn from the holotype, *Luteyn et al.* 15322).

Additional collections examined: **PANAMA. Bocas del Toro:** along road between Florida and Chiriquí Grande, 1.2 mi N of Continental Divide, 5.3 mi N of bridge over Fortuna Dam, 8°44'N, 82°17'W, 910 m, 12 Mar 1985, *Croat & Grayum* 60459 (DUKE!, MO!, NY!, WIS!); forest along the Gualaca-Chiriquí Grande road, 31.7 km S of Chiriquí Grande and 15.7 km N of Sitio de Presa, ca. 8°49'N, 82°12'W, 1070 m, *Luteyn* 14831 (DUKE!, MO!, NY!, P!, PMA!, SCZ!, W!); Fortuna Dam-Chiriquí Grande road, 2–3 km N of the Continental Divide, ca. 8°48'N, 82°12'W, 700–760 m, 15 Oct 1998 (fl), *Luteyn, Riggs, Guerra & Sylva* 15325 (DUKE!, MO!, NY!, PMA!, U!); **Chiriquí:** Fortuna Dam area, Km 63 N of dam along road to Chiriquí Grande, ca. 8°48'N, 82°12'W, 890 m, 16 Jan 2003 (bud), *Luteyn & Pedraza* 15545 (NY!, PMA!); Campamento de Bijao-Fortuna, 19 Mar 1976, *Mendoza, Mendieta & Mayo* 260 (DUKE!); road from Fortuna Lake to Chiriquí Grande, 5 km along track just S of continental divide wet forest, 8°49'N, 82°12'W, 700 m, *Hampshire & Whiteford* 441 (NY).

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